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HLA Federation Development and Execution Process

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Background

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- HLA provides a runtime architecture for distributed simulations
- HLA definition process is based on a series of prototyping efforts (proto-federations) to get hands-on experience with use of the HLA
- The proto-federation experience has highlighted the importance to the HLA of the process of use of the HLA to support user requirements
- The result, the Federation Development and Execution Process, is a composite (and still evolving) view of this process

High Level Architecture (HLA)

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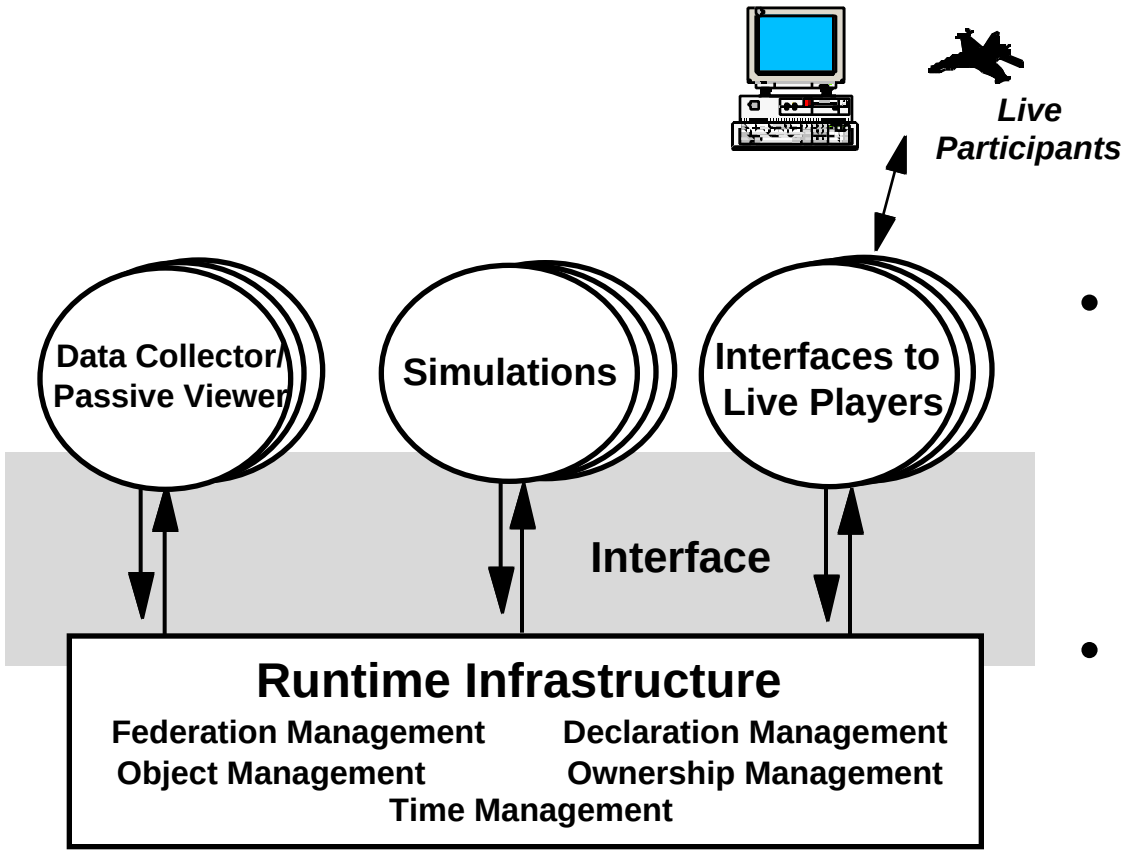

- **HLA distributed applications, Federations, include:**
  - **Federates**
  - **Runtime Infrastructure**
  - **HLA Object Model**
- **HLA is defined by:**
  - **Rules (basic principles for federates and federations)**
  - **Runtime interface specification**
  - **Object Model Template specification**

Sponsor's View of Modeling and Simulation

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The process of use of the HLA starts with a user requirement and finishes with results and feedback to the user on that requirement.

Conceptual Design Activities

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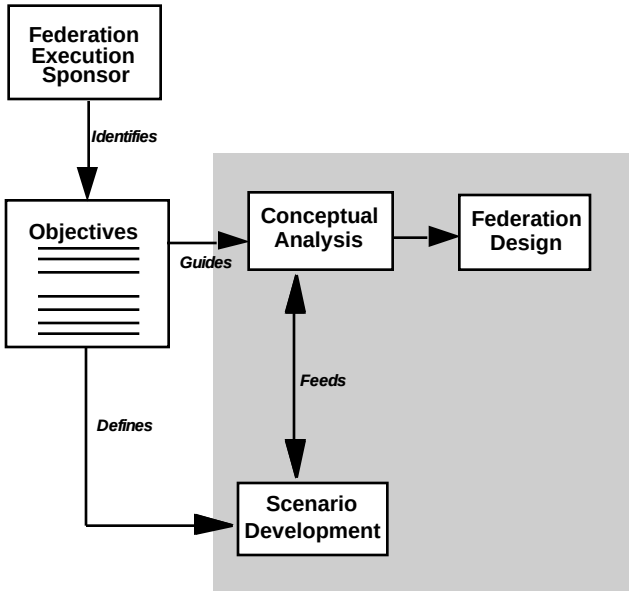
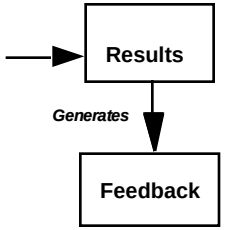


- **Driven by the objectives, the initial steps in developing a federation are to define:**
  - **The types of objects and interactions needed to address the objectives**
  - **Required scenario context**
- **These feed the process of federation design**



Resources For Developers

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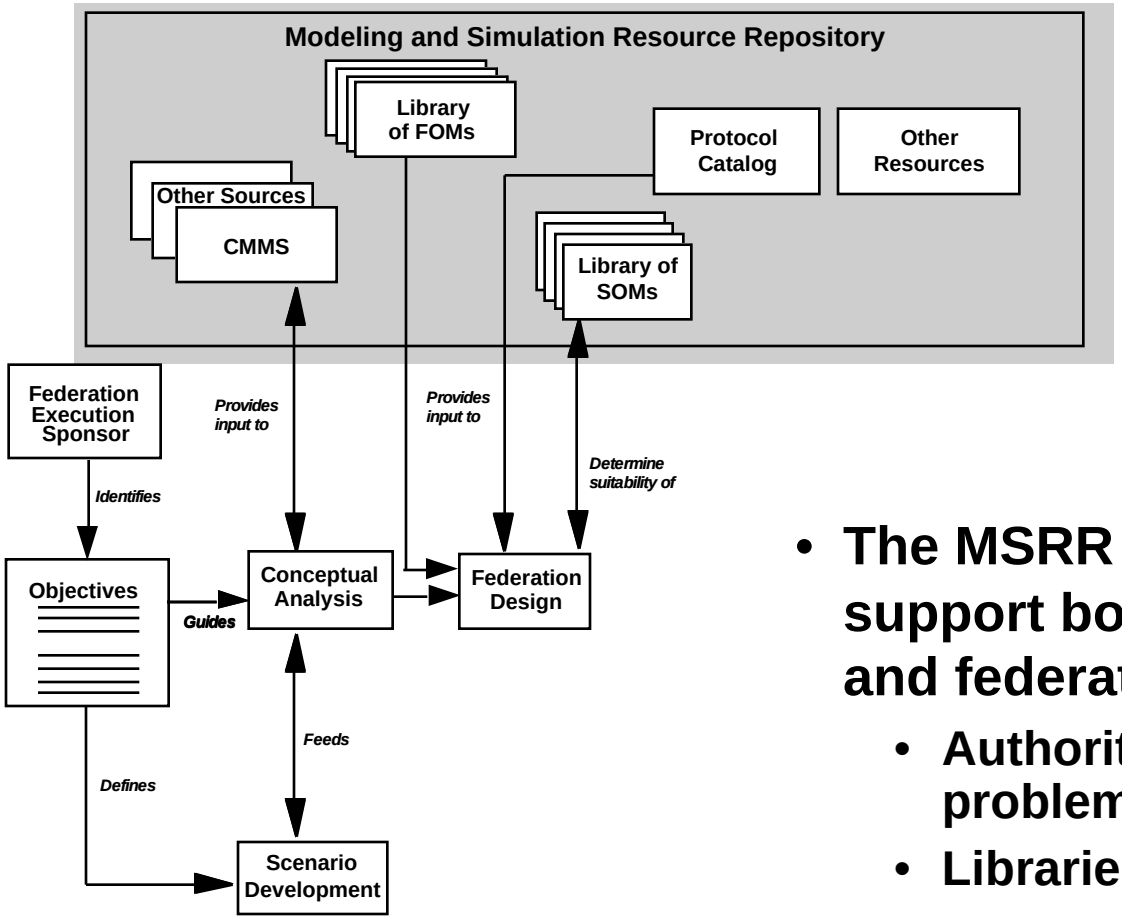

- **The MSRR will contain resources to support both conceptual analysis and federation design, utilizing**
  - **Authoritative knowledge bases in the problem domain**
  - **Libraries of object models**
  - **Protocol catalogues**
- **Automated tools will be developed to use these resources**

Federation Design Activities

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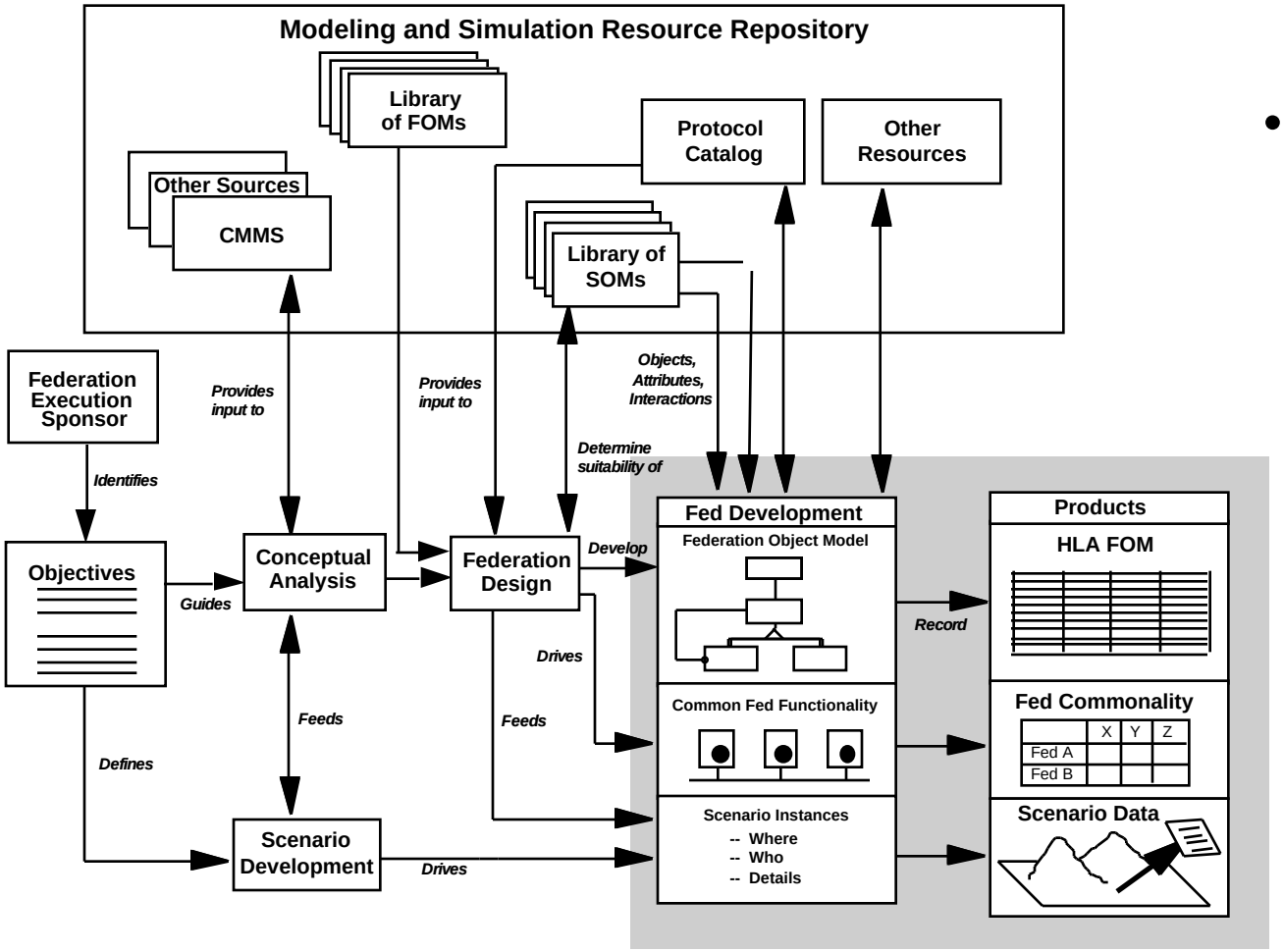

- **Federation design requires definition of**
  - **Information to be shared among federates at runtime (FOM)**
  - **Required commonality among federates to support objectives**
  - **Scenario data to support a specific federation execution**
- **HLA specification addresses the FOM**

Federation Implementation Factors

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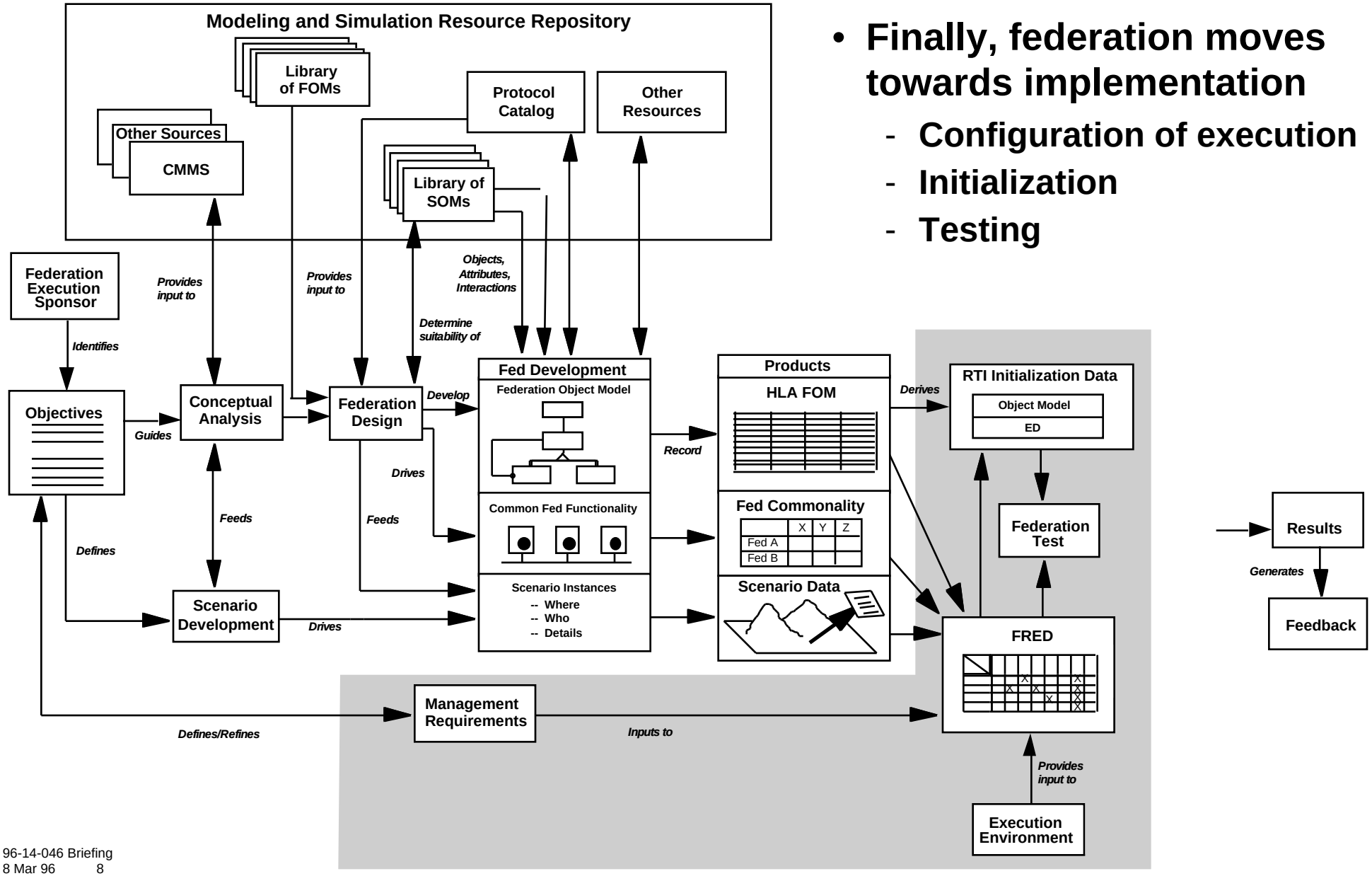

- **Finally, federation moves towards implementation**
  - **Configuration of execution**
  - **Initialization**
  - **Testing**

Federation Execution

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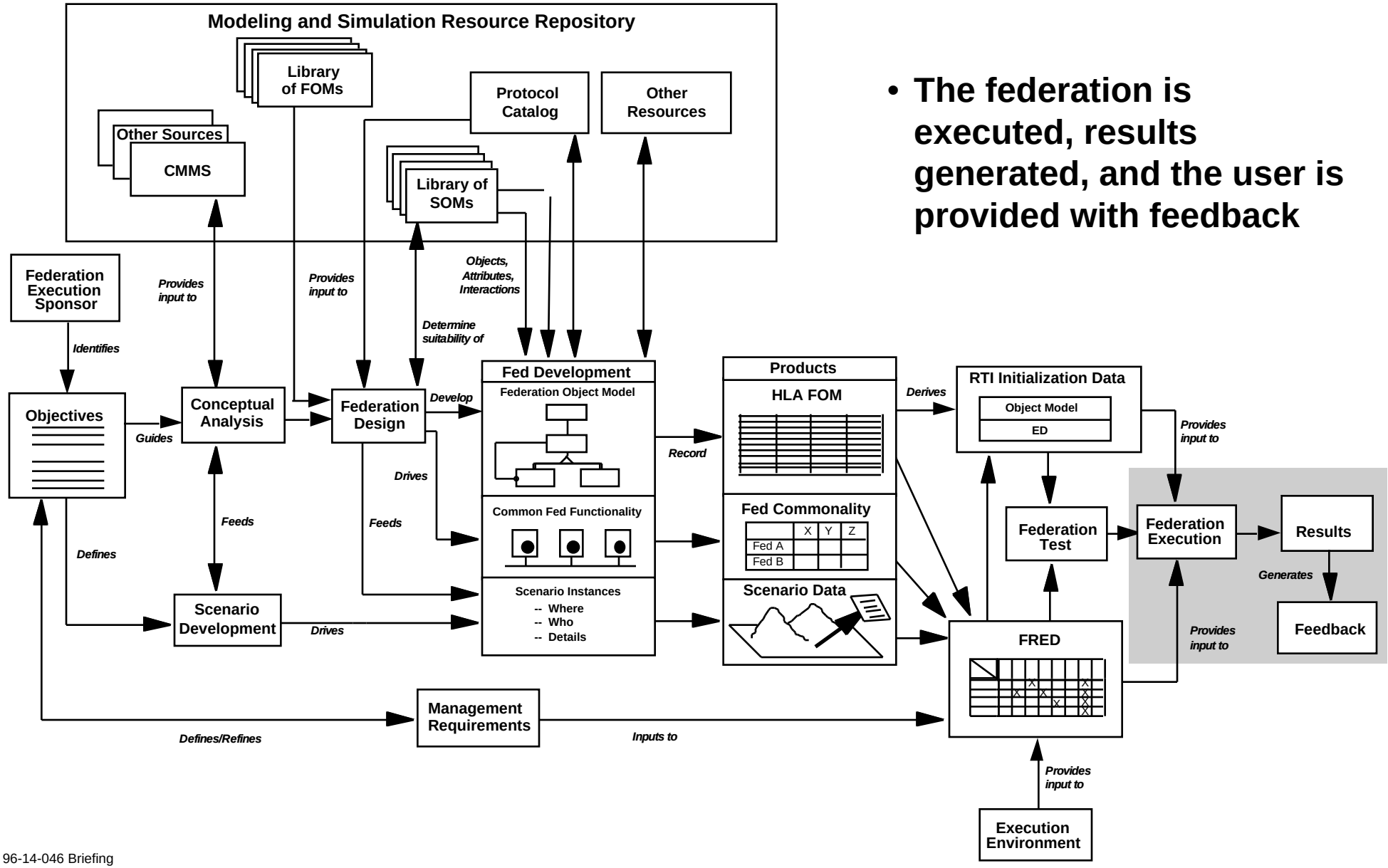

- **The federation is executed, results generated, and the user is provided with feedback**

Federation Development and Execution Process

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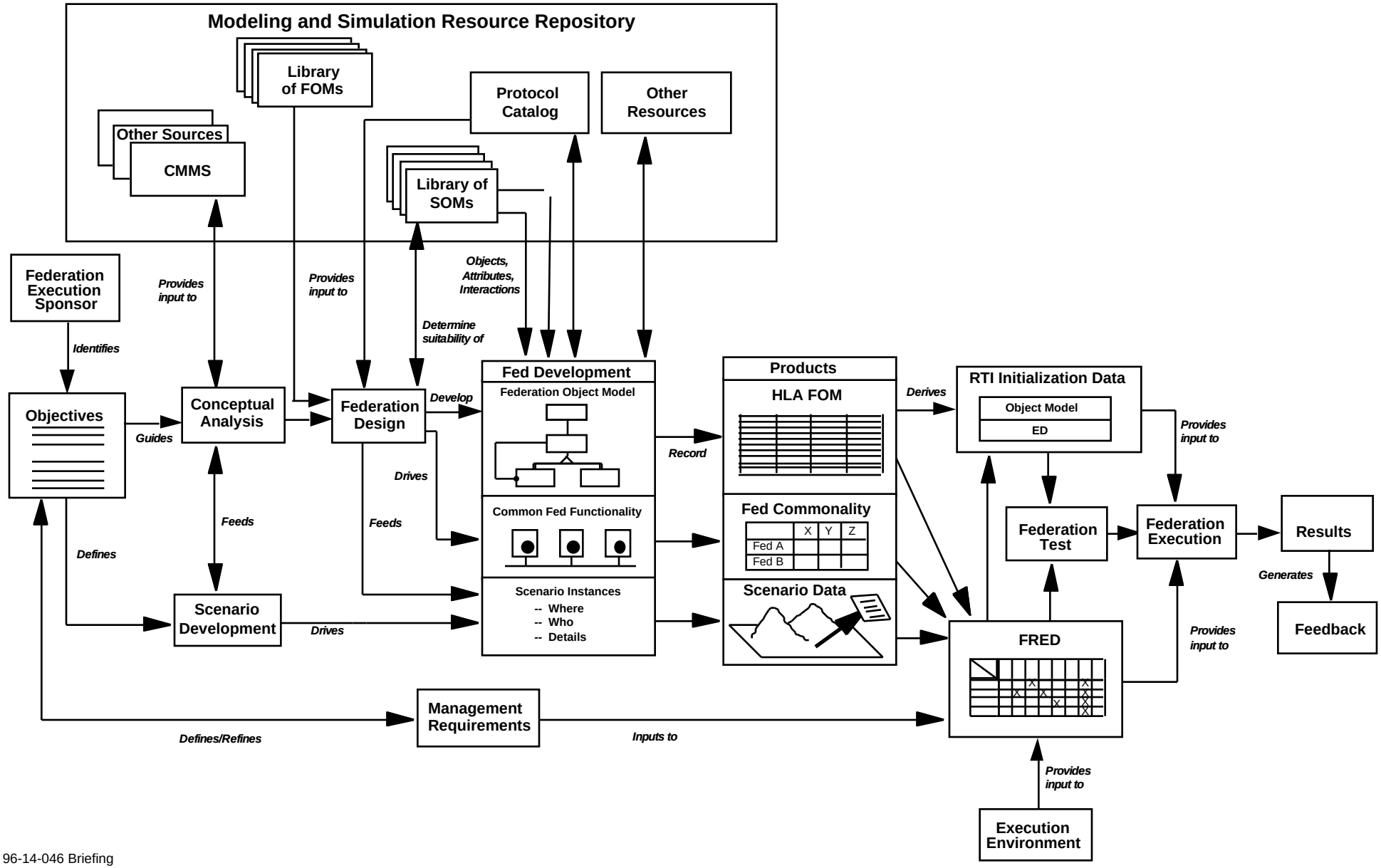

HLA-Related Components

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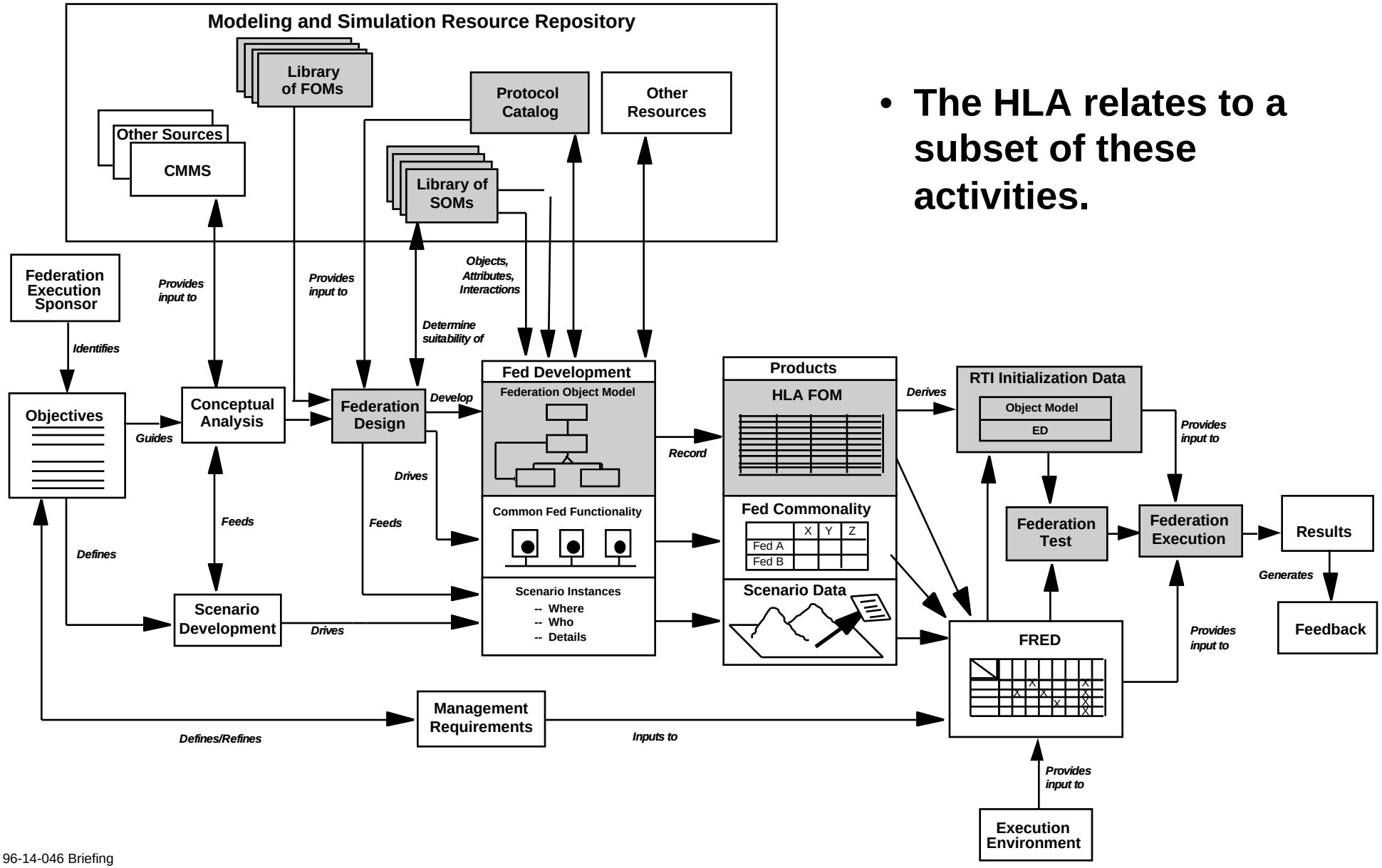

- **The HLA relates to a subset of these activities.**

Notional VV&A Overlay

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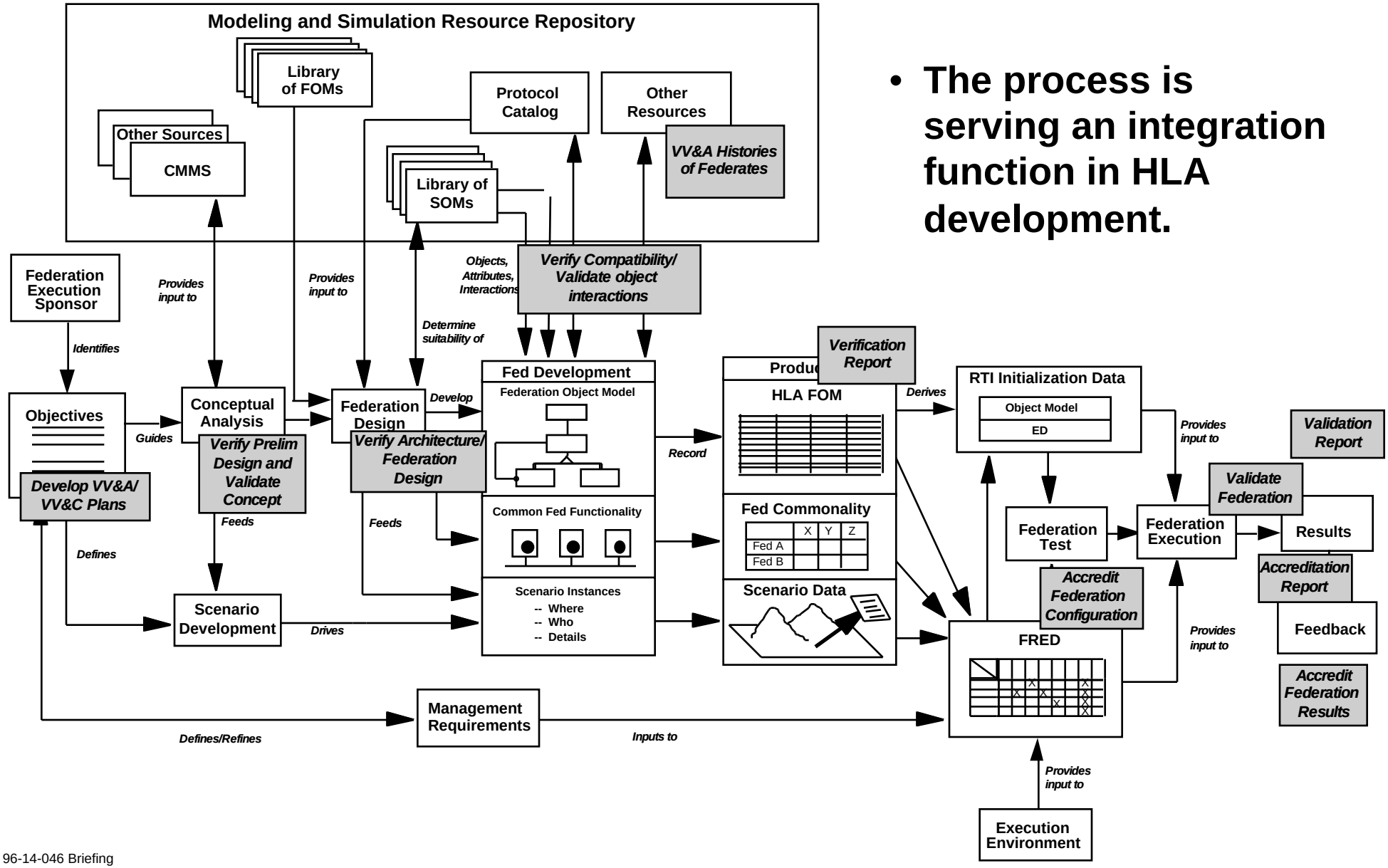

- **The process is serving an integration function in HLA development.**

In Summary...

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- **This process view of the HLA is being developed based on the experience with the proto-federations**
- **It has proven to be a very useful way to understand implications of the HLA and broader parts of simulation development and use**
- **Available on the DMSO Home Page... comments are welcome**

http://www.dmso.mil/